

NEW HETEROPOGON WITH A KEY TO THE SPECIES (DIPTERA, ASILIDAE).

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Two species of *Heteropogon* from Arizona are described as new and a description of the female of *Heteropogon vespoides* (Bigot) is given. *Pycnopogon cirrhatus* Osten Sacken is included in the key to the species, as is also *H. johnsoni* Back which, in the writer's opinion, is a more typical *Pycnopogon* than *cirrhatus*; in fact, there are no good characters for separating these two genera if the American species can be considered as examples. Two species, *H. phoenicurus* Loew and *H. rubrifasciatus* Bromley, have not been seen, so it has been necessary to rely on the descriptions for placing them in the key, a procedure which usually does not prove satisfactory.

KEY TO THE SPECIES OF HETEROPOGON.²

1. Abdomen dorsally with at least posterior one-third of segments clothed with longer recumbent light hairs (*Pycnopogon* Loew) 2
- Abdomen dorsally with very short, inconspicuous hairs (*Heteropogon* Loew) 3
2. Basal half or two-thirds of abdominal segments black haired, apically yellowish white haired; middle tibiae of the males without brush of black hairs and bristles; length 10-15 mm. (Colo., Ariz., N. Mex., Tex.) *johnsoni* Back
- Abdomen golden haired, only anterior angles black haired; middle tibiae of males with a brush of black hairs and bristles; length 8-12 mm. (Calif., Oreg., Wash., Nebr.)
cirrhatus Osten Sacken
3. Scutellum with fine hair, marginal bristles present or absent. 4
- Scutellum not finely haired, marginal bristles present 14
4. Scutellum without marginal bristles 5
- Scutellum with marginal bristles 7

¹ The writer is especially indebted to Mr. D. K. Duncan of Globe, Ariz., who collected most of the specimens of the new species described and who has supplied many additional new species from Arizona.

² *Heteropogon nigripes* Jones is not included, as it apparently belongs in the genus *Eucyrtopogon* Curran. Its entirely black legs will separate it from the species of *Heteropogon* and *Pycnopogon*.

5. Abdomen largely black; wings with small brown clouds on cross veins and furcations; male genitalia very large; length 10-12 mm. (Colo., Utah, Mont., Ariz.).

maculinervis James

Abdomen largely reddish; wings more extensively brownish. 6

6. Femora black; style $1\frac{1}{4}$ times as long as third antennal joint; scutellum with only a few marginal hairs; front metatarsi of male with dense appressed white hairs above; length 10-16 mm. (Tex.) *patruelis* Coquillett

Femora reddish, dorsum usually black; style two-thirds as long as third antennal joint; scutellum with quite abundant marginal and discal hairs; front male metatarsi without dense hairs above; length 14-17 mm. (Calif., Ariz.).

rubida Coquillett³

7. Femora below reddish; very large species; abdomen largely yellow pollinose; length 24-25 mm. (Calif.).

vespoides Bigot

Femora black; smaller species, 18 mm. or less in length 8

8. Wings largely brown or with definite brown clouds on cross veins and furcations 9

Wings hyaline, sometimes with a yellowish clouding around anterior cross vein 10

9. Basal half of wings, except extreme base, hyaline, apex black; style longer than third antennal joint; mesonotum white or yellowish pollinose; length 9-12 mm. (Tex.).

phoenicurus Loew

Wings hyaline with small brown clouds on cross veins and furcations; style shorter than third antennal joint; mesonotum brown pollinose; length 10-14 mm. (Okla.).

currani Pritchard

10. Abdomen entirely bare of pollen 11

At least hind angles of abdominal segments pollinose 12

11. Laterally anterior half of abdominal segments with rather long black hairs; mesonotum largely brown pollinose; mesonotal and tibial bristles black; length 10-18 mm. (Calif., Oreg., Wash., B. C.) *ludius* Coquillett

Hairs on sides and short dorsal hairs on abdomen largely white; mesonotum largely gray and yellowish pollinose; mesonotal and tibial bristles largely white; length 13 mm. (Calif., Oreg.) *senilis* Bigot

³ The type specimen from Los Angeles County, Calif., in the U. S. National Museum has marginal scutellar bristles.

12. Entire male abdomen and segments 1-5 of female abdomen pollinose; bristles white except some or those on the tarsi, which are black; length 12-16 mm. (Colo., N. Mex.).
wilcoxi James
 At most posterior margins of abdominal segments pollinose, bristles black 13
13. Only hind angles of abdominal segments pollinose posteriorly; style subequal in length to the third antennal joint; length 11-16 mm. (Ariz., Utah) **arizonensis**, n. sp.
 Entire posterior margins of most of abdominal segments pollinose; style 1 1/3 times as long as third antennal joint; length 9-12 mm. (Tex.) *lautus* Loew
14. Scutellum apically shining black 15
 Scutellum entirely pollinose 17
15. Style longer than third antennal joint; male abdomen spatulate; abdomen of both sexes largely yellowish; length 10-11 mm. (Ariz.) *spatulatus* Pritchard
 Style shorter than third antennal joint; male abdomen not spatulate; abdomen of both sexes largely black 16
16. Femora black; wings hyaline, clouded on the cross veins and furcations; male fore metatarsi with dense white hairs dorsally and externally; length 8-9 mm. (Ariz.).
paurosomus Pritchard
 Hind femora, and usually middle ones below, reddish; wings dark brown, anal and basal cells lighter; male fore metatarsi with very short recumbent white pile; length 8-10 mm. (Ariz.) **duncani**, n. sp.
17. Female abdomen black; male middle tibiae with brushes of black hairs; length 10-12 mm. (N. J., N. Y., Pa., Ky.)
macerinus Walker
 Segments 2-6 of female abdomen posteriorly and seventh segment entirely reddish; male middle tibiae without brushes of black hairs; length 10-15 mm. (N. C.).
rubrifasciatus Bromley

Heteropogon vespoides (Bigot).

Anisopogon vespoides Bigot, Annales, 423, 1878.
Heteropogon vespoides Back, Trans. Amer. Ent. Soc. XXXV: 329, 1909.

This species was described from a single male specimen collected in California and apparently has not been recognized since. A specimen believed to be the female is described below.

Female: Length 25 mm. Head black in ground color (greased so that the color of the pollen cannot be determined); hairs and bristles whitish, the hairs below antennae and on front, and 6 bristles on either side of ocellar tubercle, brownish. First two antennal joints and apical two-thirds of third joint reddish, base of third joint and the style black; first two joints subequal in length, both brown haired, second joint with two short brown bristles below; third joint $1\frac{1}{3}$ times as long as first two joints together, of nearly uniform width, slightly wider at middle and gradually narrowing at apex; style half as long as third joint.

Mesonotum black (greased), the humeri, lateral margins, and postalar calli reddish. Hairs brown, bristly, a lateral tuft behind humeri and those on postalar calli fine, whitish. Bristles brown, 3-4 short humeral, 3-4 presutural, 8-9 supra-alar, and 4-5 postalar. Scutellum black (greased) with fine whitish discal hairs and about 10 brown marginal bristles. Pleura and coxae (greased) largely reddish, sternopleura below black; hairs and bristles yellowish white.

Abdomen (greased) largely black, sides of segments 2-5 and segments 6-8 largely reddish; segments 1-6 apparently largely covered with dense pollen, narrow anterior margin of segment 2 and broad anterior corners of segments 2-5 shining, bare of pollen. Hairs entirely yellowish white, long on sides of segments 1-2; apical spines brown.

The dorsal half of femora, tibiae narrowly dorsally, black, remainder of legs reddish; hairs entirely yellowish white; bristles entirely yellowish to brownish; claws black, bases reddish; pulvilli yellowish. Metatarsi of fore and middle legs subequal, and of hind legs equal, in length to joints 2-4 together.

Halteres reddish brown. Wings tinged with light brown, more intense along veins; veins reddish brown, anterior cross-vein at five-ninths distance from base to apex of discal cell.

Described from a specimen with the following data: Paraiso Springs, Monterey County, Calif., IX-2 '24 (L. S. Slevin), in the collection of the California Academy of Sciences.

The yellow face and scutellum and the yellow areas on the mesonotum and abdomen referred to by Bigot must apply to the color of the pollen, which is greased on this specimen.

Heteropogon duncani, new species.

Male: Length 8 mm. Head grayish white pollinose; palpi, proboscis, and vertex black. Hairs white, on palpi black; bristles of mystax yellowish (1 on oral margin black), sparse, upper two at about two-thirds height of face; four yellowish bristles on ocellar tubercle and about half of occipital bristles yellowish, remainder black. First and second antennal joints subequal in length, first joint black and white haired, second joint black haired and with a strong yellowish bristle below; third joint $1\frac{1}{4}$ times as long as first two joints together; style two-thirds as long as third joint.

Anterior third of mesonotum including humeri densely whitish pollinose, broad central stripe somewhat darker, remainder brownish pollinose. Sparse hairs anteriorly white, those posteriorly black; 2-3 black humeral bristles, 4-5 yellowish presutural, 2 black supra-alar, 2-3 yellow postalar, and 1-2 yellow posterior dorsocentral. Basal half of scutellum gray pollinose, apical half black, bare of hairs but with a pair of yellowish marginal bristles. Pleura and coxae gray pollinose and white pilose.

Abdomen largely bluish black, posterior corners of segments 3-4, narrow posterior margin of segment 5, apical half and sides of segment 6, and segment 7 entirely, yellowish red; sides of first segment and small posterior corners of segments 2-5 gray pollinose; hairs on lateral margins fine, white, rather long on segments 1-4; above these on the sides of the segments are rather numerous, short, black and yellow spines; dorsally with short, sparse, recumbent black hairs on the black areas, those on the yellowish areas yellow; first segment with 2-3 white lateral bristles. Genitalia reddish brown and short yellowish and brown haired, hypandrium with a narrow apical fringe of dense, quite long, black hairs.

Femora black, fore femora below at apex, middle femora below at base and apex, and entire venter of hind femora reddish; tibiae and tarsi reddish, last joint of tarsi black; claws black; pulvilli dark brown. Hairs of femora and tibiae largely white, of tarsi largely black, fore metatarsi with sparse white hairs above and posteriorly; bristles of femora white, of tibiae largely white, and of tarsi largely black. Middle femora and tibiae without brush of black hairs.

Halteres yellowish, base brown. Wings brown, anal and

basal cells lighter; veins dark brown, anterior crossvein at three-fifths distance from base to apex of discal cell.

Female: Length 9 mm. Similar. All but one of occipital bristles yellowish. Median blackish-brown stripe of mesonotum more evident anteriorly. Abdomen as in male except that broad sides of segments 6-7 are reddish, segment 8 and apical spines black. Bristles of femora and tibiae and about half of those of tarsi white.

Holotype: Male, Baboquivari Mts., Ariz., April (D. K. Duncan), in the writer's collection.

Allotype: Female, with same data, in the writer's collection.

Paratypes: 78 specimens with the same data and Santa Catalina Mts., Ariz., April (Duncan), in the writer's and D. K. Duncan's collections, and 4 specimens, type locality, IV-28 '35 (F. H. Parker) in F. H. Parker's collection.

Very similar to *paurosomus* Pritchard, but differing in that the bristles of the mystax extend higher up on the face, the white hairs of the mesonotum are very sparse (the white hairs are very dense in *paurosomus*, especially anteriorly), the yellowish hairs and the dorsal black hairs of the abdomen are more abundant, the hind femora are reddish below, the white hairs of the fore metatarsi and the black hairs on their outer joints are short (in *paurosomus* the white hairs and the black hairs of the outer joints form a dense posterior fringe about equal in length to the diameter of the segments), and the brown of the wings is more extensive. Mr. A. Earl Pritchard has very kindly loaned the writer paratypes of *paurosomus*.

Heteropogon arizonensis, new species.

Male: Length 12 mm. Head grayish white pollinose, palpi and proboscis black. Hairs fine, white, those of the palpi black. Bristles on oral margin and upper 8-10 occipital bristles, black; remainder of occipital bristles and four on ocellar tubercle white. First two antennal joints subequal in length and white haired, second joint with a black bristle below; third joint $1\frac{2}{3}$ times length of first two joints together, style subequal in length to third joint.

Mesonotum thinly gray pollinose, subshining brown, transverse suture and lateral margins more densely gray pollinose. Hairs white, bristles largely black, 1-2 short humeral, 4 pre-sutural, 4 supra-alar, and 4 postalar (white). Scutellum grayish pollinose and fine white haired, four black marginal bristles. Pleura and coxae gray pollinose and white haired.

Abdomen black, sides of first segment, posterior corners of segments 2-4, and narrow anterior margins of segments 2-5, gray pollinose. Hairs on sides of segments white, long on sides of segments 1-4, dorsally with short, recumbent, black hairs, 4-5 white lateral bristles on first segment. Genitalia black, reddish brown apically, sparsely white haired, hypandrium apically with a dense fringe of yellowish white bristles.

Femora black, tibiae and tarsi reddish; hairs largely white, bristles largely black; fore metatarsi dorsally and posteriorly with rather dense white hairs; middle femora and tibiae with usual brush of black hairs.

Halteres yellowish. Wings clear hyaline, veins dark brown, anterior crossvein at about two-thirds distance from base to apex of distal cell.

Female: Length 11 mm. Similar. Bristles on ocellar tubercle black. Mesonotum largely golden brown pollinose, suture and lateral margins grayish pollinose. Sides of abdominal segments 1-4 and anterior margins of segments 2-4 gray pollinose; segments 5-8 shining black, apical spines black. Fore metatarsi with very sparse, short, white hairs; middle femora and tibiae without brushes of black hairs; tibial bristles largely white.

Holotype: Male, White Mts., Ariz., September (D. K. Duncan), in the writer's collection.

Allotype: Female, with the same data, in the writer's collection.

Paratypes: 37 specimens of both sexes with the same data, in the writer's and D. K. Duncan's collections; and male, Oak City, Utah, VI-25 '35 (G. J. Sorenson), in Dr. S. W. Bromley's collection.

Note on the Occurrence of *Oeneis macouni*.—I first learned about the occurrence of *Oeneis macouni* Edw. in Michigan from an article in *Entomological News* in 1939 (pp. 192-194). Mr. R. N. Rysgaard, of the University of Michigan, has given the Isle Royale specimen to the Museum of Zoology of the University. He wrote me: "The specimen of *macouni* was taken on Birch Island, Amygdaloid Channel, Isle Royale, on June 29, 1934. The area was upland woods in which there are paper birch, small Norway and white pine, and a few other hardwoods. There were frequent open areas among the trees."—W. W. NEWCOMB, Ann Arbor, Mich.